

In the Claims:

1 - 57 (Canceled)

58. (Presently Amended) A method of forming a protective structure for a ferroelectric dielectric region on an integrated circuit substrate, the method comprising:
depositing a first metal oxide layer of a different material than the ferroelectric dielectric region directly on a surface of the ferroelectric dielectric region;
annealing the first metal oxide layer and the ferroelectric dielectric region; and
depositing a non-conductive second metal oxide layer on the first metal oxide layer, wherein the first and second metal oxide layers are non-ferroelectric material layers.

59. (Original) A method according to Claim 58, wherein the first metal oxide layer is sufficiently thin enough to enable a remnant polarization of the ferroelectric dielectric region to increase during the annealing of the first metal oxide layer and the ferroelectric dielectric region.

60. (Original) A method according to Claim 58, wherein annealing the first metal oxide layer and the ferroelectric dielectric region comprises annealing the first metal oxide layer and the ferroelectric dielectric region in a manner sufficient to increase the remnant polarization of the ferroelectric dielectric region.

61. (Original) A method according to Claim 58, wherein the first metal oxide layer is sufficiently thick enough to reduce diffusion of hydrogen into the dielectric region during the depositing of the second metal oxide layer.

62. (Previously Presented) A method of forming a protective structure for a ferroelectric dielectric region on an integrated circuit substrate, the method comprising:
depositing a first metal oxide layer directly on a surface of the ferroelectric dielectric region;
annealing the first metal oxide layer and the ferroelectric dielectric region; and
depositing a second metal oxide layer on the first metal oxide layer,

wherein the first metal oxide layer comprises a metal oxide selected from the group consisting of Al_2O_3 , TiO_2 , ZrO_2 , Ta_2O_5 and CeO_2 ; and

wherein the second metal oxide layer comprises a metal oxide selected from the group consisting of Al_2O_3 , TiO_2 , ZrO_2 , Ta_2O_5 and CeO_2 .

63. (Previously Presented) A method according to Claim 62, wherein the second metal oxide layer is thicker than the first metal oxide layer.

64. (Original) A method according to Claim 63, wherein the second metal oxide layer is at least about twice as thick as the first metal oxide layer.

65. (Original) A method according to Claim 64, wherein the second metal oxide layer is less than about ten times as thick as the first metal oxide layer.

66. (Original) A method according to Claim 63:

wherein depositing a first metal oxide layer comprises depositing a first Al_2O_3 layer; and

wherein depositing a second metal oxide layer comprises depositing a second Al_2O_3 layer.

67. (Original) A method according to Claim 66, wherein the first Al_2O_3 layer has thickness in a range from about 10 Å to about 15 Å, and wherein the second Al_2O_3 layer has a thickness greater than about 50 Å.

68. (Original) A method according to Claim 67:

wherein depositing a first Al_2O_3 layer comprises depositing the first Al_2O_3 layer at a temperature of about 500 °C in an oxygen atmosphere;

wherein annealing the first metal oxide layer and the ferroelectric dielectric region comprises annealing the first Al_2O_3 layer at a temperature in a range from about 400 °C to about 600 °C; and

wherein depositing a second Al_2O_3 layer comprises depositing the second Al_2O_3 layer at a temperature of about 500 °C in an oxygen atmosphere.

69. (Original) A method according to Claim 68, further comprising annealing the second Al₂O₃ layer.

70. (Original) A method according to Claim 58:

wherein depositing a first metal oxide layer comprises depositing the first metal oxide layer according to one of an atomic layer deposition method, a low pressure chemical vapor deposition method, a high pressure chemical vapor deposition method, a plasma chemical vapor deposition method or a chemical vapor deposition method; and

wherein depositing a second metal oxide layer comprises depositing the second metal oxide layer according to one of an atomic layer deposition method, a low pressure chemical vapor deposition method, a high pressure chemical vapor deposition method, a plasma chemical vapor deposition method or a chemical vapor deposition method

71. (Original) A method according to Claim 58, wherein the ferroelectric dielectric region is a capacitor dielectric.

72. (Original) A method according to Claim 58, wherein the ferroelectric dielectric region comprises a ferroelectric material selected from the group consisting of SrTiO₃, BaTiO₃, (Ba, Sr)TiO₃, Pb(Zr, Ti)O₃, SrBi₂Ta₂O₉, (Pb, La)(Zr, Ti)O₃ and Bi₄Ti₃O₁₂.

73. (Canceled)

74. (Previously Presented) A method according to Claim 58:

wherein the first metal oxide layer comprises a metal oxide selected from the group consisting of Al₂O₃, TiO₂, ZrO₂, Ta₂O₅ and CeO₂; and

wherein the second metal oxide layer comprises a metal oxide selected from the group consisting of Al₂O₃, TiO₂, ZrO₂, Ta₂O₅ and CeO₂.

75. (Previously Presented) A method according to Claim 74, wherein the ferroelectric dielectric region comprises a ferroelectric material selected from the group consisting of SrTiO₃, BaTiO₃, (Ba, Sr)TiO₃, Pb(Zr, Ti)O₃, SrBi₂Ta₂O₉, (Pb, La)(Zr, Ti)O₃ and Bi₄Ti₃O₁₂.

76. (Previously Presented) A method according to Claim 58, wherein the second metal oxide layer is thicker than the first metal oxide layer.

77. (Previously Presented) A method according to Claim 62, wherein the ferroelectric dielectric region comprises a ferroelectric material selected from the group consisting of SrTiO_3 , BaTiO_3 , $(\text{Ba}, \text{Sr})\text{TiO}_3$, $\text{Pb}(\text{Zr}, \text{Ti})\text{O}_3$, $\text{SrBi}_2\text{Ta}_2\text{O}_9$, $(\text{Pb}, \text{La})(\text{Zr}, \text{Ti})\text{O}_3$ and $\text{Bi}_4\text{Ti}_3\text{O}_{12}$.